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EXAMINER	
LAM, VINH TANG	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/825,357	LEE ET AL.	
	Examiner	Art Unit	
	VINH T. LAM	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *1-3,6,24 and 25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4,5 and 7-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims **4** and **19** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon (US Pub. No. 2004/0189584)** in view of **Tanada (US Patent 6909409).**

Regarding Claim **4**, (Currently Amended) **Moon** teaches an electro-luminescence display device, comprising:

electro-luminescence cells arranged in a matrix type at crossings of gate lines and data lines ([**0039**]-[**0040**], FIG. **1**);

a supply voltage line for supplying a driving voltage to the electro-luminescence cells ([**0038**]&[**0040**], FIG. **1**);

driving circuits (i.e. **412**, [**0064**], FIG. **4**) for controlling a current applied from the driving voltage of the supply voltage line to the electro-luminescence cells in response to video signals ([**0049**], FIG. **1**), wherein each of driving circuit includes a first driving circuit and a second driving circuit ([**0065**], FIG. **4**); and

control circuits (i.e. **411**, [**0064**], FIG. **4**) for applying the video signals (i.e. **Von**, [**0065**], FIG. **4**) to the driving circuits, wherein each of the control circuits is directly

connected between the data line (i.e. **Von**, [**0065**], FIG. **4**) and the supply voltage line (i.e. **Voff**, [**0065**], FIG. **4**).

However, **Moon** does not teach each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit.

In the same field of endeavor, **Tanada** teaches each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit (Col. **7**, Ln. **14-30**, FIG. **1B**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Moon** teaching of an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to the electro-luminescence cells, driving circuits controlling voltage to the electro-luminescence cells, and control circuits for applying the video signals to the driving circuits, wherein each of the control circuits is directly connected between the data line and the supply voltage line with **Tanada** teaching of each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit in order to benefit of improving the aperture ratio and image quality by having an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to the electro-luminescence cells, driving circuits controlling voltage to the electro-luminescence cells, control circuits for applying the

video signals to the driving circuits, wherein each of the control circuits is directly connected between the data line and the supply voltage line, and each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit.

Regarding Claim **19**, (Currently Amended) **Moon** teaches an electro-luminescence display device, comprising:

a plurality of pixels arranged in a matrix type ([**0039**]-[**0040**], FIG. **1**);

a plurality of data lines for applying video signals to the pixels ([**0039**]-[**0040**], FIG. **1**);

electro-luminescence cells provided for each pixel ([**0039**]-[**0040**], FIG. **1**);

a supply voltage line for supplying a driving voltage to the electro-luminescence cells ([**0038**]&[**0040**], FIG. **1**);

driving circuits (i.e. **412**, [**0064**], FIG. **4**) for applying a current corresponding to the video signals to the electro-luminescence cells in response to the video signals ([**0049**], FIG. **1**); and

control circuits (i.e. **411**, [**0064**], FIG. **4**) for applying video signal (i.e. **Von**, [**0065**], FIG. **4**) to the driving circuits, wherein each of the control circuits is directly connected between the data line (i.e. **Von**, [**0065**], FIG. **4**) and the supply voltage line (i.e. **Voff**, [**0065**], FIG. **4**).

However, **Moon** does not teach

each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit;

a plurality of gate lines crossing the data lines, wherein each of the gate lines is shared with the pixels positioned adjacently to each other at the upper and lower sides of the gate line.

In the same field of endeavor, **Tanada** teaches each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit (Col. **7**, Ln. **14-30**, FIG. **1B**);

a plurality of gate lines crossing the data lines, wherein each of the gate lines is shared with the pixels positioned adjacently to each other at the upper (i.e. left) and lower (i.e. right) sides of the gate line (FIG. **1B**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Moon** teaching of an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to the electro-luminescence cells, driving circuits controlling voltage to the electro-luminescence cells, and control circuits for applying the video signals to the driving circuits, wherein each of the control circuits is directly connected between the data line and the supply voltage line with **Tanada** teaching of each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving

circuit and a plurality of gate lines crossing the data lines, wherein each of the gate lines is shared with the pixels positioned adjacently to each other in order to benefit of improving the aperture ratio and image quality by having an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to the electro-luminescence cells, driving circuits controlling voltage to the electro-luminescence cells, control circuits for applying the video signals to the driving circuits, wherein each of the control circuits is directly connected between the data line and the supply voltage line, and each of the control circuit is positioned between the first driving circuit and the second driving circuit so that the control circuit supplies the video signal to the first driving circuit and the second driving circuit, and a plurality of gate lines crossing the data lines, wherein each of the gate lines is shared with the pixels positioned adjacently to each other.

2. Claim **5**, **7**-**10**, and **20**-**23** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon (US Pub. No. 2004/0189584)** in view of **Tanada (US Patent 6909409)** and further in view of **Inukai (US Pub. 2002/0000576).**

Regarding Claim **5**, (Currently Amended) **Moon** and **Tanada** teach the electro-luminescence display device according to claim 4.

However, **Moon** and **Tanada** do not teach that the first and second driving circuits' detail connections.

In the same field of endeavor, **Inukai** teaches

wherein the first driving circuit is provided at the ith horizontal line (wherein i is an integer) to apply the current to the electro-luminescence cell positioned at the ith

horizontal line, in response to a video signal from the control circuit controlled by the ith gate line, when a gate signal is applied to the (i-1)th gate line (Col. **4**, [**0080**], FIG. **3**), and

the second driving circuit is provided at the (i+1)th horizontal line to apply the current to the electro-luminescence cell positioned at the (i+1)th horizontal line, in response to a video signal from the control circuit controlled by the ith gate line, when a gate signal is applied to the (i+1)th gate line (Col. **4**, [**0079**], FIG. **3**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Moon** and **Tanada** teachings of an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to, driving circuits, control circuits including the firs and second driving circuits with **Inukai** teaching of connections sequence of the first and second driving circuits in order to benefit of improving the aperture ratio and image quality by having an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to, driving circuits, control circuits including the firs and second driving circuits, and connections sequence of the first and second driving circuits.

Regarding Claim **7**, (Original) the electro-luminescence display device according to claim 5, wherein **Inukai** teaches the (i+1)th gate line is connected to a driving circuit provided at the (i+2)th horizontal line (FIG. **2**).

Regarding Claim **8**, (Original) the electro-luminescence display device according to claim 5, wherein **Moon** teaches the (i-1)th gate line is connected to a driving circuit provided at the (i-1)th horizontal line (FIG. **1**).

Regarding Claim **9**, (Original) the electro-luminescence display device according to claim 5, wherein **Inukai** teaches the first driving circuits includes:

a first driving thin film transistor having a source terminal connected to the supply voltage line and a drain terminal connected to the electro-luminescence cell positioned at the ith horizontal line (Col. **4**, [**0082**], FIG. **3**);

a second driving thin film transistor having a drain terminal connected to a gate terminal of the first driving thin film transistor, a source terminal connected to the control circuit and a gate terminal connected to the (i-1)th gate line (Col. **4**, [**0080**], FIG. **3**); and

a storage capacitor connected between the source terminal and the gate terminal of the first driving thin film transistor (Col. **4**, [**0081**], FIG. **3**).

Regarding Claim **10**, (Original) the electro-luminescence display device according to claim 5, wherein **Inukai** teaches the second driving circuits includes:

a first driving thin film transistor having a source terminal connected to the supply voltage line and a drain terminal connected to the electro-luminescence cell positioned at the (i+1)th horizontal line (Col. **4**, [**0082**], FIG. **3**);

a second driving thin film transistor having a drain terminal connected to a gate terminal of the first driving thin film transistor, a source terminal connected to the control circuit and a gate terminal connected to the (i+1)th gate line (Col. **4**, [**0080**], FIG. **3**); and

a storage capacitor connected between the source terminal and the gate terminal of the first driving thin film transistor (Col. **4**, [**0081**], FIG. **3**).

Regarding Claim **20**, (Original) **Moon** and **Tanada** teach the electro-luminescence display device according to claim 19.

However, **Moon** and **Tanada** do not teach a gate driver for applying a gate signal having a turn-on potential during two horizontal periods to the gate lines.

In the same field of endeavor, **Inukai** further teaches comprising:

a gate driver for applying a gate signal having a turn-on potential during two horizontal periods to the gate lines (Col. **7**, [**0124**], [**0125**], FIG. **5A**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Moon** and **Tanada** teachings of an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to, driving circuits, control circuits including the firs and second driving circuits with **Inukai** teaching of a gate driver for applying a gate signal having a turn-on potential during two horizontal periods to the gate lines in order to benefit of improving the aperture ratio or sharing the gate line and image quality by having an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to, driving circuits, control circuits including the firs and second driving circuits, and a gate driver for applying a gate signal having a turn-on potential during two horizontal periods.

Regarding Claim **21**, (Original) the electro-luminescence display device according to claim 20, wherein **Inukai** teaches a gate signal applied to the ith gate line

(wherein i is an integer) overlaps a gate signal applied to the (i+1)th gate line during one horizontal period (Col. **7**, [**0124**], [**0125**], FIG. **5A**).

Regarding Claim **22**, (Original) the electro-luminescence display device according to claim 21, wherein **Inukai** teaches each of the driving circuits includes:

a first driving circuit provided at the ith horizontal line (wherein i is an integer) to apply the current to the electro-luminescence cell positioned at the ith horizontal line, in response to a video signal from the control circuit controlled by the ith gate line, when a gate signal is applied to the (i-1)th gate line (Col. **4**, [**0082**], FIG. **3**); and

a second driving circuit provided at the (i+1)th horizontal line to apply the current to the electro-luminescence cell positioned at the (i+1)th horizontal line, in response to a video signal from the control circuit controlled by the ith gate line, when a gate signal is applied to the (i+1)th gate line (Col. **4**, [**0080**], FIG. **3**).

Regarding Claim **23**, (Original) the electro-luminescence display device according to claim 22, wherein **Tanada** teaches one of the control circuits is positioned between the first driving circuit and the second driving circuit (Col. **7**, Ln. **14-30**, FIG. **1B**).

3. Claims **11**-**18** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Moon (US Pub. No. 2004/0189584)** in view of **Tanada (US Patent 6909409)** in view of **Inukai (US Pub. 2002/0000576)** and further in view of **Komiya (US Patent No. 6924602).**

Regarding Claim **11**, (Original) **Moon**, **Tanada**, and **Inukai** teach the electro-luminescence display device according to claim 9 or 10.

However **Moon**, **Tanada**, and **Inukai** do not teach the control circuit includes a first and a second control thin film transistors detailed connections.

In the same field of endeavor, **Komiya** teaches that the control circuit includes:

a first control thin film transistor having a source terminal connected to the supply voltage line and a drain terminal and a gate terminal connected to the source terminal of the second driving thin film transistor (Col. **3**, Ln. **34-44**, FIG. **1**); and

a second control thin film transistor having a drain terminal connected to the gate terminal of the first control thin film transistor, a source terminal connected to the data line and a gate terminal connected to the ith gate line (Col. **3**, Ln. **34-44**, FIG. **1**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Moon**, **Tanada**, and **Inukai** teachings of an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to, driving circuits, control circuits including the firs and second driving circuits, and connections sequence of the first and second driving circuits with **Komiya** teaching of the control circuit including a first and a second control thin film transistors connections in order to benefit of improving the aperture ratio and image quality by having an electro-luminescence display device comprising electro-luminescence cells arranged in a matrix, a supply voltage line to, driving circuits, control circuits including the firs and second driving circuits, connections sequence of the first and second driving circuits, and the control circuit including a first and a second control thin film transistors detailed connections.

Regarding Claim **12**, (Original) the electro-luminescence display device according to claim 11, wherein **Inukai** teaches any one of the first and second control thin film transistors is provided at the ith horizontal line while the remaining control thin film transistor is provided at the (i+1)th horizontal line (Col. **4**, [**0079**], [**0080**], FIG. **3**).

Regarding Claim **13**, (Original) the electro-luminescence display device according to claim 11, **Inukai** further teaches comprising:

a gate driver for applying a gate signal having a turn-on potential during two horizontal periods to the gate lines (Col. **7**, [**0124**], [**0125**], FIG. **5A**).

Regarding Claim **14**, (Original) the electro-luminescence display device according to claim 13, wherein **Inukai** teaches a gate signal applied to the ith gate line overlaps a gate signal applied to the (i+1)th gate line during one horizontal period.

Regarding Claim **15**, (Original) the electro-luminescence display device according to claim 13, wherein **Inukai** teaches, if a gate signal is applied to the (i-1)th and ith gate lines, then the second driving thin film transistor connected to the (i-1)th gate line and the second control thin film transistor connected to the ith gate line are turned on (Col. **4**, [**0079**], [**0080**], FIG. **3**); and

as the second control thin film transistor is turned on, a video signal from the data line is applied to the first driving thin film transistor and the first control thin film transistor that are positioned at the ith horizontal line (Col. **4**, [**0079**], [**0080**], FIG. **3**).

Regarding Claim **16**, (Original) the electro-luminescence display device according to claim 15, wherein **Inukai** teaches the first driving thin film transistor positioned at the ith horizontal line applies the current corresponding to the video signal

to the electro-luminescence cell provided at the ith horizontal line (Col. **4**, [**0084**], FIG. **3**).

Regarding Claim **17**, (Original) the electro-luminescence display device according to claim 15, wherein **Inukai** teaches the first control thin film transistor applies the current corresponding to the video signal from the supply voltage line to the data line.

Regarding Claim **18**, (Original) the electro-luminescence display device according to claim 17, wherein **Inukai** teaches a voltage corresponding to the current flowing in the first control thin film transistor is stored in the storage capacitor (Col. **4**, [**0081**], FIG. **3**).

Response to Arguments/Amendments/Remarks

4. Applicant's arguments with respect to claims 1 and 19 have been considered but are moot in view of the new ground(s) of rejection.

5. Claims **1**-**3**, **6, 24**-**25** are cancelled.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINH T. LAM whose telephone number is (571)270-3704. The examiner can normally be reached on M-F (7:00-4:30) EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VTL/

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